

CLAIMS

- 1 1. A magnetic head, comprising:
2 a first magnetic pole;
3 a second magnetic pole;
4 at least one of said magnetic poles including a magnetic shaping layer;
5 a media heating device being disposed adjacent to and in electrical connection
6 with said shaping layer;
7 said media heating device including a heating element and two electrical leads,
8 and where at least one of said magnetic poles is utilized as a said electrical lead of said
9 heating device.
- 1 2. A magnetic head as described in claim 1 wherein said one of said magnetic poles
2 that includes a shaping layer also includes a probe layer, and wherein said shaping layer
3 is utilized as a said electrical lead of said heating device.
- 1 3. A magnetic head as described in claim 2 wherein an electrical insulation layer is
2 disposed between said shaping layer and said probe layer.
- 1 4. A magnetic head as described in claim 2 wherein another said electrical lead of
2 said heating device is disposed beneath said shaping layer, and wherein an electrical
3 insulation layer is disposed between said electrical lead and said shaping layer.

1 5. A magnetic head as described in claim 1 wherein said heating element is shaped
2 as a planar member having a lower surface and an upper surface, and wherein electrical
3 current flows through said heating element in a direction that is generally perpendicular
4 to said lower surface and said upper surface.

1 6. A magnetic head as described in claim 1 wherein said first magnetic pole and said
2 second magnetic pole are utilized as said electrical leads on opposite sides of said heating
3 device.

1 7. A magnetic head as described in claim 6 wherein said magnetic head includes a
2 first magnetic pole pedestal and said second magnetic pole includes a P2 pole tip and said
3 shaping layer, and wherein electrical current for said heating device flows through said
4 first magnetic pole and through said first magnetic pole pedestal and through said P2
5 pole tip and through said shaping layer.

1 8. A magnetic head as described in claim 7 wherein said magnetic head further
2 includes a write gap layer that is disposed between said P1 pole pedestal and said P2 pole
3 tip, and is comprised of a non-magnetic, electrically conductive material.

1 9. A hard disk drive, comprising:
2 at least one hard disk being fabricated for rotary motion upon a disk drive;

3 at least one magnetic head adapted to fly over said hard disk for writing data on
4 said hard disk, said magnetic head including:
5 a first magnetic pole tip;
6 a second magnetic pole;
7 at least one of said magnetic poles including a magnetic shaping layer;
8 a media heating device being disposed adjacent to and in contact with at least one
9 said shaping layer;
10 said media heating device including a heating element and two electrical leads,
11 and where at least one of said magnetic poles is utilized as a said electrical lead of said
12 heating device.

1 10. A hard disk drive as described in claim 9 wherein said one of said magnetic poles
2 that includes a shaping layer also includes a probe layer, and wherein said shaping layer
3 is utilized as a said electrical lead of said heating device.

1 11. A hard disk drive as described in claim 9 wherein an electrical insulation layer is
2 disposed between said shaping layer and said probe layer.

1 12. A hard disk drive as described in claim 10 wherein another said electrical lead of
2 said heating device is disposed beneath said shaping layer, and wherein an electrical
3 insulation layer is disposed between said electrical lead and said shaping layer.

1 13. A hard disk drive as described in claim 9 wherein said heating element is shaped
2 as a planar member having a lower surface and an upper surface, and wherein electrical
3 current flows through said heating element in a direction that is generally perpendicular
4 to said lower surface and said upper surface.

1 14. A hard disk drive as described in claim 9 wherein said first magnetic pole and
2 said second magnetic pole are utilized as said electrical leads on opposite sides of said
3 heating device.

1 15. A hard disk drive as described in claim 14 wherein said magnetic head includes a
2 first magnetic pole pedestal and said second magnetic pole includes a P2 pole tip and said
3 shaping layer, and wherein electrical current for said heating device flows through said
4 first magnetic pole and through said first magnetic pole pedestal and through said P2
5 pole tip and through said shaping layer.

1 16. A hard disk drive as described in claim 15 wherein said magnetic head further
2 includes a write gap layer that is disposed between said P1 pole pedestal and said P2 pole
3 tip, and is comprised of an electrically conductive material.